In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

By

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MARKED-UP REVISIONS

IN THE SPECIFICATION:

Kindly amend the specification as follows:

Page 1, paragraph 1 should read:

The invention concerns apparatus and methods for the radio transmission of chronometric information[, apparatus and a method therefore].

Page 1, paragraph 3 should read:

It is advantageous to apply this technique to the [syncronisation] synchronization of very precise clocks, one being situated for example [one] on the ground and the other on board a satellite. It is a case of precisely measuring the time difference between the respective transitions of these atomic clocks. More generally, it is a case of seeking the time difference between two contemporary events occurring in stations which are distant in space, the word "station" not implying [fixity] a stationary position here.

Page 1, paragraph 4 should read:

One of the stations transmits to the other a time marker related to its own event. Subject to knowing the actual transit time of the waves, the difference measured at the other station between the time marker received and the local event (or a time marker linked to it) gives access to the required time difference. In addition, it can be arranged so that the carrier is [frequentially] frequency linked to the time marker[;] where the phase carrier improves precision.

Page 2, paragraph 1 should read:

In order to know the distance travelled by the radio waves, a second transmission is needed[, this] in both directions. In the majority of cases, this second transmission must take place at the same time as the first. It will therefore be possible to have two transmissions and one reception for one of the stations, but the other station is the origin of one transmission and two receptions.

Page 3, paragraph 3 should read:

It overcomes the aforementioned difficulties by making provision for defining separate time segments, whose positioning in time (start and/or end) is substantially random. Transmission is enabled only during these time signals, whilst reception is enabled only outside said signals. This makes it possible to use the time markers of the signals without the effect of masking of the reception by the recurrent transmission [being recurrent].

Page 11, paragraph 2 should read:

- the antennae A1 and/or A2 to transmit every 100 [□s] µs on average, and

Page 11, paragraph 3 should read:

- the transmission time windows to have positions and/or durations which have a random component, with preferably a duration of approximately 50 [□s] µs on average. This can be achieved by randomly fixing the start and/or end times of the transmission time windows.

Page 11, paragraph 4 should read:

For its part, reception takes place during the time windows which are on average substantially complementary of 100 [□s] µs. Thus the reception time windows also have a random duration, equal to a little less than approximately 50 [□s] µs on average, as will be seen.

Page 12, paragraph 2 should read:

In practice, in order to manage the transmission and reception priorities, the signal exchange devices have a switch SW1 (or SW2) with three ways: transmission, dead time, reception (Figures 3A and 3B). This is because, between transmission (50 [□s] µs on average) and reception (48 [□s] µs on average), 2 [□s] µs are reserved for dead time, which makes it possible for example to avoid reception of a signal reflected prematurely by an aircraft.

Page 12, paragraph 4 should read:

where τ is a function of the mean recurrence of the transmission windows ($\tau = 0.421/Fr$) and defines the bandwidth of the filter. At the output of the filter 51, a comparator 52 is provided, whose switching threshold is chosen to refine a mean cycle ratio of [□=] η=50% (50 [□s] µs of transmission on average, to 100 [□s] µs on average).

Page 13, paragraph 1 should read:

It should also be noted that it is not necessary for the distant station to know the variability mode used for the transmission periods and/or positions, since provision is made, reciprocally, for the distant station to transmit for 50 [□s] µs on average and every 100 [□s] µs on average, and to receive the remainder of the time, except for the dead time. Thus reception is not always successful but, statistically, there will always be a sufficient proportion of successful receptions to be able to process the signal received.

Pages 16-17, paragraph 6 should read:

According to another advantageous characteristic of the invention, two distinct codes are used, one for transmitting the signal e1 or for returning the signal r1, and the other for transmitting the signal e2, these codes being known in reception in orbit and on the ground. Thus each signal exchange has, in addition to its [radiofrequecy] <u>radio frequency</u> carrier, a timer marker linked to a code which can be discriminated by correlation. In order to distinguish the two received signals r1 and e2 on the ground, a correlation in the knowledge of their respective codes is effected by the circuit for processing and reception C1. It should be noted that the transmission powers are situated here above the noise. In addition, durations Tsi close to 10 [□s] <u>µs</u> suffice in this application, which advantageously allows processing times by correlation which are relatively short in reception, typically around 20 s for the onboard receiver of the satellite, as against 2 s on the ground, where the position of the satellite and the phase of its clock are known with a good approximation.

<u>IN THE CLAIMS:</u>

Kindly amend the claims as follows:

1. (Amended) Apparatus for exchanging radio signals provided with time markers[, of the type] comprising radio transmission means [and reception means, to each of which there are coupled on the one hand] <u>having</u> a generator [arranged] to generate a transmission signal, comprising a carrier and a repetitive time marker, [and on the other hand] <u>reception means having</u> a reception processing circuit[, capable of working on] <u>for processing</u> a received signal, [likewise] <u>said signal</u> comprising a carrier and a repetitive time marker, the radio transmission and reception means [are arranged to work substantially on the] <u>transmitting and receiving the</u> same carrier frequency [in transmission and reception] <u>signal,</u> and [in that the device comprises] sequencing meand [able] to define separate time segments with substantially random successive positions[, and to cooperate with] <u>to control</u> the transmission and reception means [to enable] <u>enabling</u> transmission only during [these] <u>said</u> time segments, [whilst] <u>and enabling</u> reception [is

enabled only] outside the segments, [which makes it possible to exploit] whereby the time markers may be processed without any recurrent effect of the transmission signal masking [of] the reception [by the transmission] of the received signal.

3. (Amended) Apparatus according to Claim 1, wherein the sequencing means [are able to define] produce time segments, for controlling transmission and reception, [with] to have substantially equivalent respective mean durations.

5. (Amended) Apparatus according to Claim 4, wherein the [durations of the] time interval durations are predetermined whilst the [durations of the] time segments durations are random [but] and less than the time interval durations.

6. (Amended) Apparatus according to Claim 5, wherein the duration of each said time segment is on average equal to approximately one half of that of the time interval.

10. (Amended) Apparatus according to Claim 9, wherein said second received signal corresponds to said transmission signal sent by the device and returned by the source of the said received signal, whereby [there is substantially obtained] the time difference between the two time markers is obtained compensating for the instantaneous propagation time differences.

12. (Amended) Apparatus according to Claim 1, wherein [it is also arranged to return the] said received signal is returned to a source producing said signal.

14. (Amended) Apparatus according to Claim 13, wherein the signal generator is able to cooperate with the reception processing circuit in order to generate [a] <u>said</u> signal to be returned[,] <u>which is equivalent to the signal received.</u>

16. (Amended) Apparatus according to Claim 7, wherein the carrier of each signal generated is modulated according to a chosen pulse shape, whose repetition is defined according to a pattern which can be discriminated by correlation[, associated with] <u>of</u> this signal.

19. (Amended) Apparatus according to Claim 18, wherein the positions in time of two successive pulses are separated by a period less than a threshold value, and [in that they are,] on average[,] <u>are</u> separated by a period substantially equivalent to one half of [this] <u>said</u> threshold value.

20. (Amended) Apparatus according to one of the preceding claims, wherein the said carrier frequency is [included in] <u>within</u> the gigahertz band.

ABSTRACT OF THE DISCLOSURE

Radio transmission of chronometric information. A device comprising an antenna (A1, A2) to which there are coupled [on one hand] a generator (G1, G2) generating a signal to be sent (e1, e2) and a reception processing circuit (C1, C2), capable of processing a received signal (r1, e2) where the signals exchanged have the same carrier frequency. Sequencing means define separate time segments with successive random positions and transmission is enabled only during these time segments, whilst reception is enabled only during these segments, making it possible to use the time markers of the signals without any effect of recurrent masking of the reception signal by the transmission signal.